

WHAT IS CLAIMED IS:

1. A received path timing detecting circuit in a receiver used in the direct spread - code division multiple access (DS-CDMA) system, comprising:

5 a cross correlation coefficient calculating means for calculating cross correlation coefficients between a received signal and a reference signal in a predetermined cycle;

10 a differential detection means that obtains real parts of products of complex conjugate numbers of respective elements of said cross correlation coefficients { $R_{N-1,0}, R_{N-1,1}, R_{N-1,2}, \dots, R_{N-1,M}$ } calculated at the N-1st cycle (N is an integer) and respective elements of said cross correlation coefficients { $R_{N,0}, R_{N,1}, R_{N,2}, \dots, R_{N,M}$ } calculated at the Nth cycle, and outputs said real parts as differential detection cross correlation coefficients { $P_{N,0}, P_{N,1}, P_{N,2}, \dots, P_{N,M}$ };

15 an averaging means for averaging said differential detection cross correlation coefficients outputted from said differential detection means by a predetermined time; and

a peak detecting means that detects one or plural peak values from said averaged cross correlation coefficients and outputs said detected one or plural peak values as said received path timing.

2. A received path timing detecting circuit in accordance with claim 1, wherein:

5 said cross correlation coefficient calculating means makes a signal, which a pilot code inserted into a transmitted signal for executing coherent detection is spread by a spreading code allocated to its own receiver, said reference signal.

3. A received path timing detecting circuit in accordance with claim 1, wherein:

5 said averaging means applies an exponential weighting average method or a moving average method to said differential detection cross correlation coefficients by using a predetermined time constant, when said differential detection cross correlation coefficients are averaged.

4. A received path timing detecting circuit in accordance with claim 1, further comprising:

5 a threshold value means that obtains a standard deviation of elements of said cross correlation coefficients averaged at said averaging means except said peak values, and compares a relative value among said plural peak value positions detected at said peak detecting means with a threshold value obtained by that said standard deviation is multiplied by a predetermined factor, and outputs an effective received path timing when said relative value exceeded said threshold value.